Journal of the Bombay Natural History Society, 101 (1), Jan.-Apr. 2004 124-129

NEW ORB-WEAVING SPIDERS OF THE GENUS *CYRTOPHORA* SIMON (ARANEAE: ARANEIDAE) FROM BANGLADESH[1]

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[1]Accepted July, 2001

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Two new species of orb-weaving spiders of the Genus *Cyrtophora* Simon, *C. nareshi* and *C. lahirii* are described and illustrated. Another, *C. cicatrosa* (Stoliczka) is reported as a new record for the country. A key to the species is also given.

Key words: Spider, new species, new record, *Cyrtophora*, Araneae, Araneidae, Bangladesh

INTRODUCTION

Spiders of the Family Araneidae (=Argiopidae) are poorly known in Bangladesh, though Chowdhury and Nagari (1981), Chowdhury and Pal (1984), Biswas *et al.* (1993), Okuma *et al.* (1993), Begum and Biswas (1997), and Biswas and Raychaudhuri (1998) have made some valuable contributions. Spider fauna of neighbouring countries, like Burma (Thorell 1895), India (Pocock 1900; Tikader 1970, 1982; Tikader and Bal 1981; Tikader and Biswas 1981; Saha *et al.* 1995; Biswas *et al.* 1997) and Pakistan (Dyal 1935) are well documented.

The Genus *Cyrtophora* Simon, recorded since 1988 from Bangladesh, is composed of three species of which two *C. lahirii* and *C. nareshi* are new to science, while *C. cicatrosa* (Stoliczka) was hitherto unknown from Bangladesh.

The types are at present in the collection of the Department of Zoology, Government P.C. College, Bagerhat, Bangladesh and will be deposited in the Museum of the Department of Zoology, University of Dhaka, Bangladesh.

MATERIAL AND METHODS

Collection of spider specimens was done following Kaston (1972), Mackie (1978) and Tikader (1987). The collected materials were studied using a Stereozoom Binocular Microscope (Model, Zeiss-SV8) and all the measurements (in mm) were taken with an eyepiece.

The species were identified following Tikader (1982, 1987), Chen and Zhang (1989), Zhao (1993), Yaginuma (1986), Davies (1988) and Yin *et al.* (1997) and confirmed by the Zoological Survey of India, Kolkata.

Genus: ***Cyrtophora* Simon 1864**

1864. *Cyrtophora* Simon, *Hist. Nat. des Araign.*, *1*: 261.

1890. *Euetria*: Thorell, *Annali. Mus. civ. Genova*, *28*: 109.

1921. *Cyrtophora*: Gravely, *Rec. Indian Mus.*, *22(4)*: 413.

1962. *Cyrtophora*: Tikader, *J. Linn. Soc.*, *44(300)*: 561.

1993. *Cyrtophora*: Okuma *et al.*, *Illust. Mongr. Rice-field spiders, Bangladesh*: 29.

1997. *Cyrtophora*: Platnick, *Advances in Spider Taxonomy* (1992-95): 498.

KEY TO THE SPECIES

1. Abdomen anteriorly with 4 conical humps, posteriorly sloped and rectangularly produced (Fig. 1); sternum with long, slender, white band (Fig. 4); epigyne and internal genitalia as in Figs 5 and 6 .... *cicatrosa*
— Abdomen without above characteristics; sternum with V and U-shaped area 2
2. Abdomen parallel-sided (Fig. 7); cephalic region never raised or produced (Fig. 7); sternum broadly triangular, medially with a U-shaped longitudinal reticulate area (Fig. 10); inner and outer margins of chelicerae with 2 and 3 teeth (Fig. 8) respectively; epigyne as in Fig. 11 .... *nareshi* sp. nov.
— Abdomen postero-medially wide (Fig. 13); cephalic region strongly raised and produced (Fig. 13); sternum heart-shaped, medially with a V-shaped area (Fig. 16); each of inner and outer margins of chelicerae with 2 teeth (Fig. 14); epigyne as in Fig. 17 .... *lahirii* sp. nov.

***Cyrtophora cicatrosa* (Stoliczka)**
(Figs 1-6)

1869. *Epeira* (*Nephila*) *cicatrosa* Stoliczka, *J. Asiatic Soc. Beng. 33*: 242.

1900. *Araneus cicatrosa*: Pocock, *Fauna Brit. India, Arach.*: 226.

1935. *Cyrtophora cicatrosa*: Dyal, *Bull. Zool. Panjab Univ. 1*: 175.

1962. *Cyrtophora cicatrosa*: Tikader, *J. Linn. Soc. 44*(300): 563.

1982. *Cyrtophora cicatrosa*: Tikader, *Fauna of India, Araneae: Spiders 2(1)*: 178.

1997. *Cyrtophora cicatrosa*: Biswas *et al.*, *Entomon 22(3 & 4)*: 230.

Material examined: 1 ♀, Khulna, 10.x.1993, Coll. V. Biswas; 2 ♀ ♀, Manikganj, 12.v.1992, Coll. V. Biswas; 1 ♀, Rajshahi, 3.iii.1992, Coll. V. Biswas.

Distribution: Bangladesh: Khulna, Manikganj, Rajshahi, Jessore; India; Pakistan; Burma (Myanmar); Malaysia; New Guinea; Australia (Tikader 1982).

Cyrtophora nareshi sp. nov.

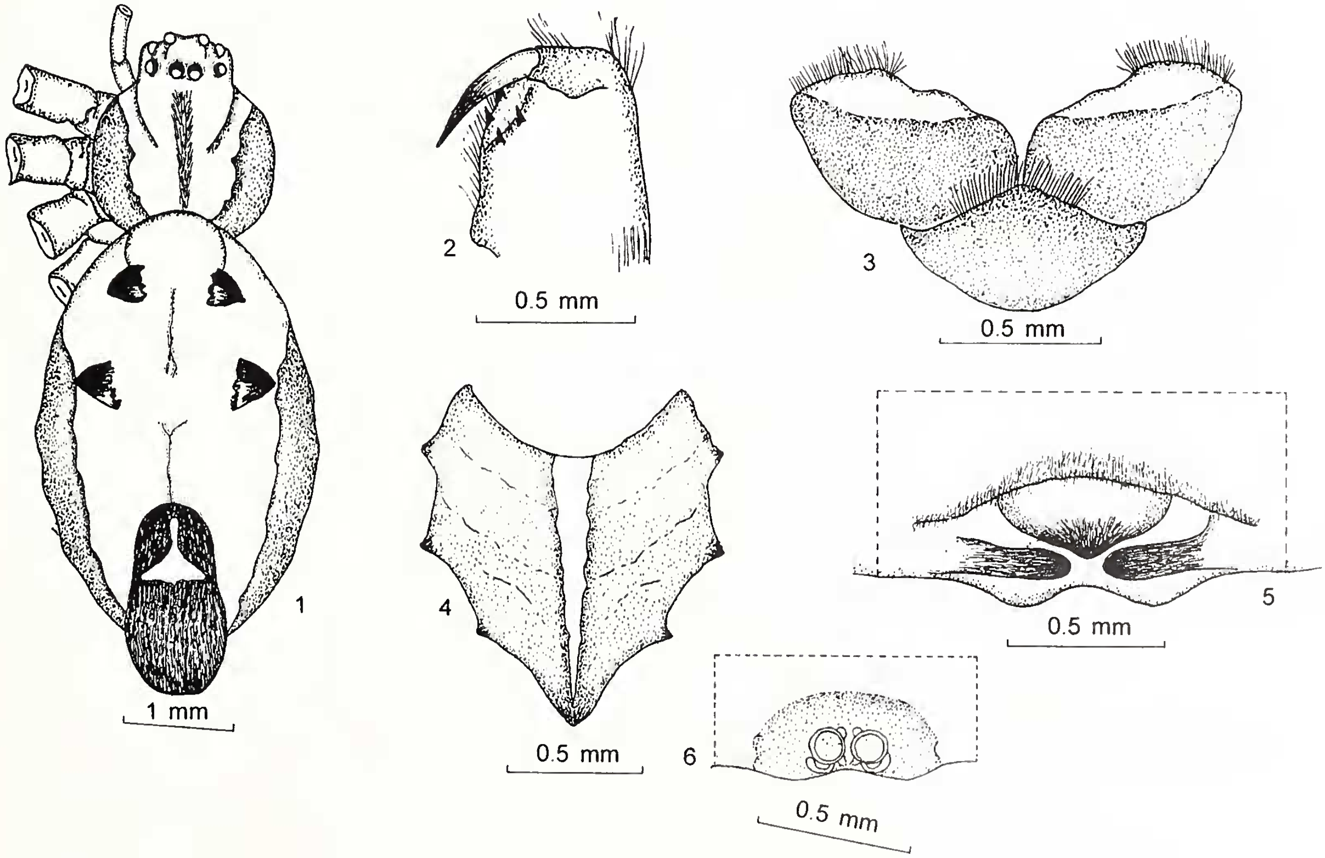
(Figs 7-12)

Holotype (Female): Measurements (in mm): Total body length 6.00; carapace length 2.00, width 2.10; abdominal length 4.00, width 4.10. Legs as in Table 1.

Colour (specimens preserved in alcohol): Cephalothorax yellow-green; legs brown-yellow with white markings. Abdomen decorated with various markings. Abdomen dark yellow.

Carapace: Longer than wide, anteriorly narrowing, posteriorly wide; dorsum with white, median decorated area (Fig. 7); cephalic region slightly raised; eyes brown and pearly-white, dissimilar; lateral eyes larger than others; anterior row recurved and posterior row procurved; anteromedians situated on a protuberance; ocular-quad longer than wide, anteriorly narrowing and posteriorly wide; chelicerae brown, long, nearly parallel sided, inner and outer margins of chelicerae with 2 and 3 teeth respectively (Fig. 8); maxillae brown, long, boat-shaped, medially wide, scopulate (Fig. 9); labium pale brown, pot-like, wider than long, scopulate (Fig. 9); sternum brown, with U-shaped, white reticulate longitudinal area, nearly heart-shaped, bluntly pointed, sparsely spined posteriorly, anterior margin concave (Fig. 10); legs long and slender, clothed with hairs and spines; leg formula 1 2 4 3 and measurements as in Table 1.

Abdomen: Elongate, oval, parallel sided, posterior extremity narrow; dorsum with brown and white, few



Figs 1-6: *Cyrtophora cicatrosa* (Stoliczka), 1. Female dorsal view (legs omitted), 2. Chelicerae, 3. Maxillae and Labium, 4. Sternum, 5. Epigynum, 6. Internal genitalia

Table 1: Leg segments of *Cyrtophora nareshi* sp. nov. ♀ measurements (in mm)

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	7.0/7.0	2.0/2.0	5.0/5.0	7.0/7.0	2.0/2.0	23.0/23.0
II	7.0/7.0	1.5/1.5	5.0/5.0	7.0/7.0	1.9/1.9	22.4/22.4
III	4.0/4.0	1.0/1.0	3.0/3.0	3.0/3.0	1.2/1.2	12.2/12.2
IV	7.0/7.0	1.5/1.5	4.0/4.0	6.5/6.5	2.0/2.0	21.0/21.0
Palps	3.1/3.1	2.0/2.0	2.5/2.5	—	1.0/1.0	8.6/8.6

sigilla and brown spots; epigyne and internal genitalia as in Figs 11 and 12.

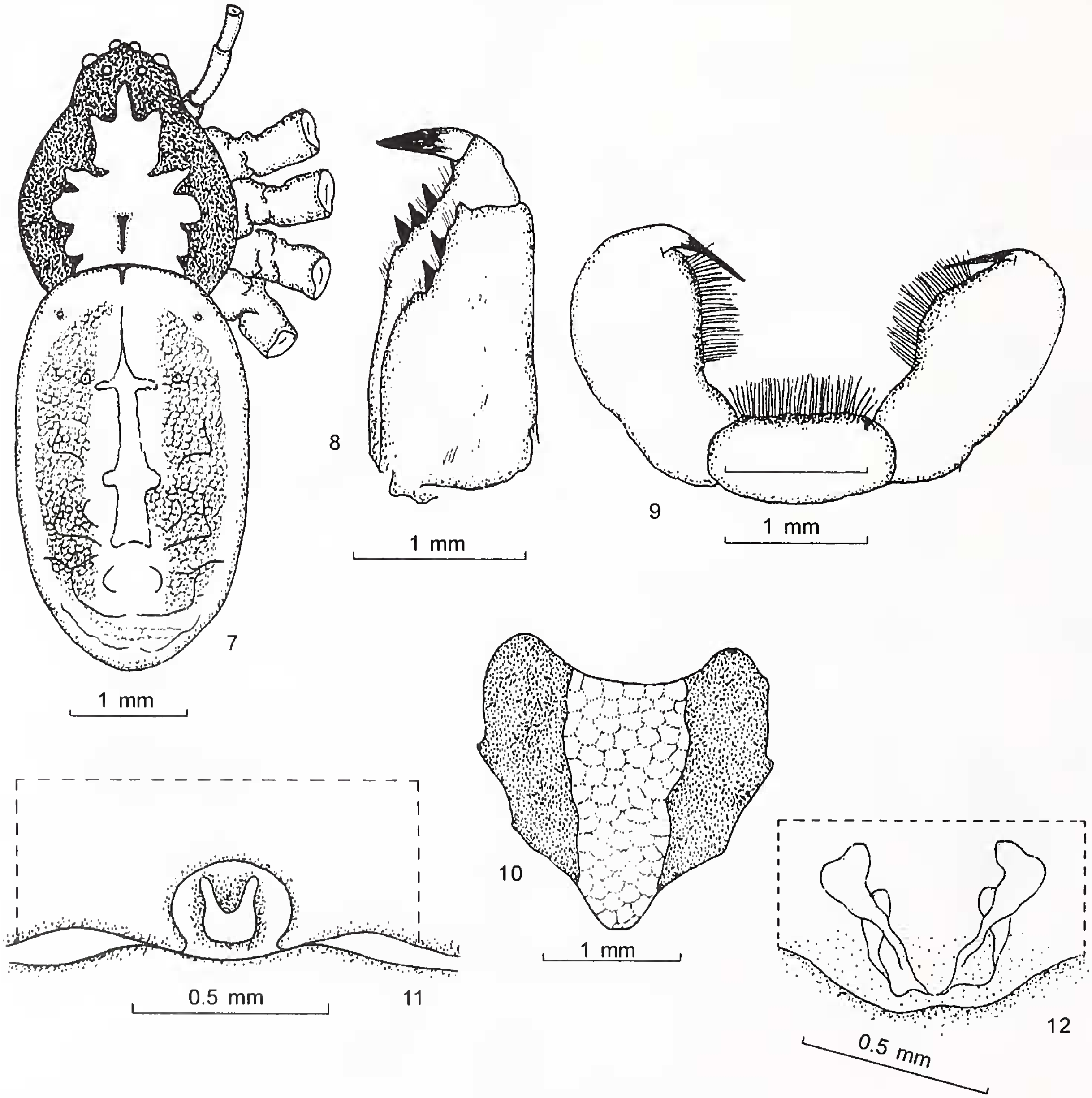
Specimens examined: Holotype ♀, 3.iii.1992, Coll. V. Biswas. Paratype; 1 ♀, other data same as holotype.

Type locality: Digha, Rajshahi, Bangladesh.

Male: Unknown.

Distribution: BANGLADESH: Rajshahi (known only from the type locality).

Etymology: The species is named after Prof. Naresh Chandra Dutta, Department of Zoology, University of Calcutta, India, who was a source of inspiration.



Figs 7-12: *Cyrtophora nareshi* sp. nov., 7. Female dorsal view (legs omitted), 8. Chelicerae, 9. Maxillae and Labium, 10. Sternum, 11. Epigynum, 12. Internal genitalia

Remarks: The new species is close to *Cyrtophora lahirii* sp. nov. but differs as follows:

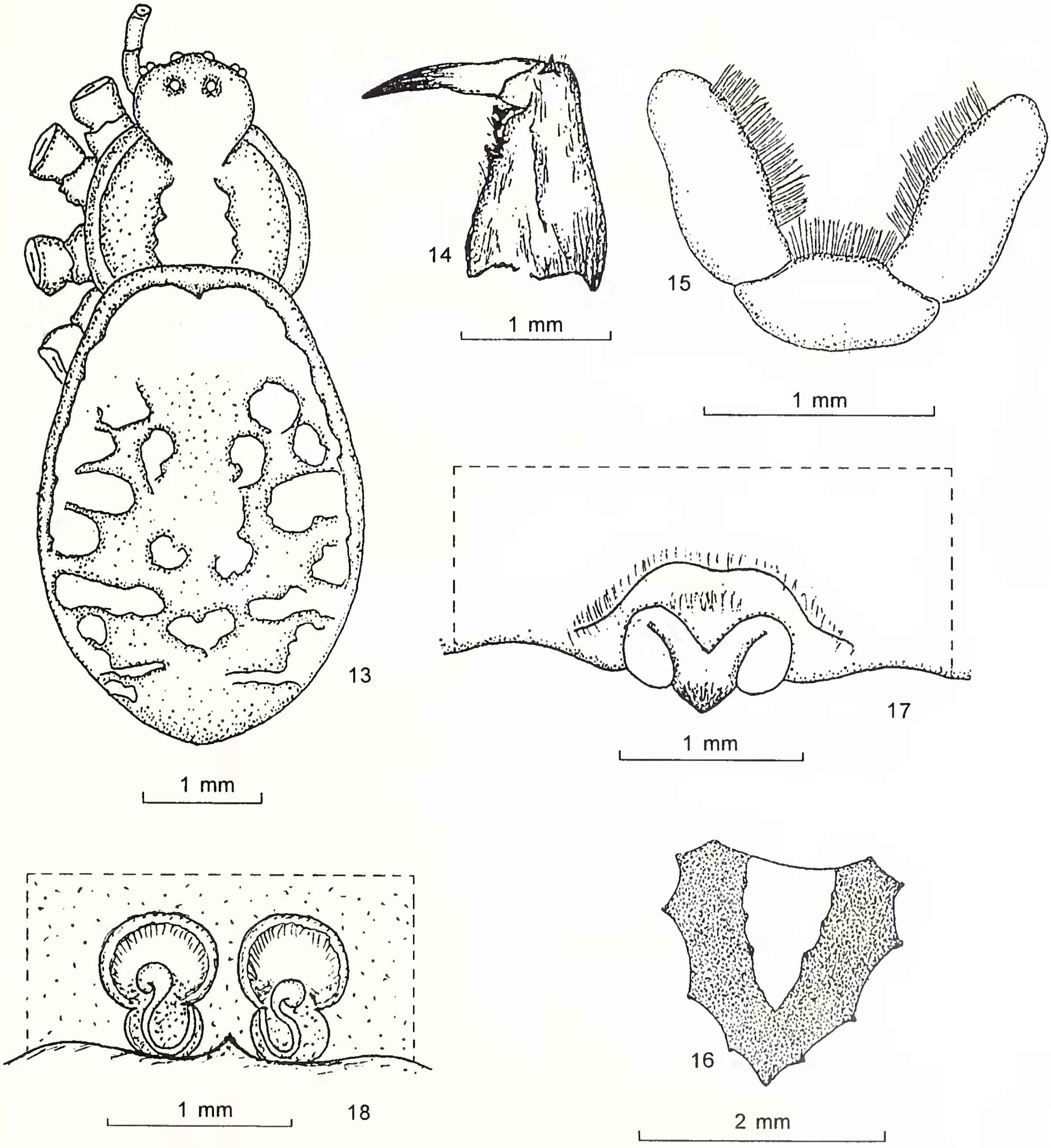
1. Cephalothorax with deep and distinct fovea, whereas in *C. lahirii* sp. nov. fovea absent.
2. Abdomen dorsally reticulate, but in *C. lahirii* sp. nov. it is nearly alveolate.
3. Sternum medially reticulate, whereas in *C. lahirii* sp. nov. it is white medially.
4. Outer margin of chelicerae with 3 teeth, but in *C. lahirii* it is 2 in number.
5. Epigyne of both the species structurally different.

Cyrtophora lahirii sp. nov.
(Figs 13-18)

Holotype (Female): Measurements (in mm). Total length 6.10; carapace length 2.20, width 2.00; abdominal length 3.8, width 4.10. Legs as in Table 2.

Colour (specimens preserved in alcohol): Cephalothorax yellow-brown; legs light brown with brown bands; abdomen brown with white patches.

Carapace: Longer than wide, wider posteriorly; cephalic region raised, produced, sphere shaped,



Figs 13-18: *Cyrtophora lahirii* sp. nov., 13. Female dorsal view (legs omitted), 14. Chelicerae, 15. Maxillae and Labium, 16. Sternum, 17. Epigynum, 18. Internal genitalia

Table 2: Leg segments of *Cyrtophora lahirii* sp. nov. ♀ measurements (in mm)

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	7.0/7.0	1.0/1.0	5.0/5.0	6.0/6.0	2.5/2.5	21.5/21.5
II	7.0/7.0	2.0/2.0	4.5/4.5	7.0/7.0	2.0/2.0	22.5/22.5
III	4.0/4.0	1.0/1.0	2.0/2.0	3.0/3.0	1.5/1.5	11.5/11.5
IV	5.5/5.5	1.5/1.5	4.4/4.4	6.0/6.0	2.0/2.0	19.4/19.4
Palps	3.0/3.0	1.0/1.0	2.0/2.0	—	1.1/1.1	7.1/7.1

with 2 deeply distinct cervical furrows (Fig. 13); eyes brown, similar; anterior row recurved and posterior row procurved; lateral eyes close and placed marginally; ocular quad squarish; chelicerae long, cylindrical, inner and outer margins with 2 teeth each (Fig. 14); maxillae long, longer than wide and scopulate anteriorly (Fig. 15); labium brown, bowl-shaped and scopulate anteriorly (Fig. 15); sternum dark-brown, heart-shaped, with a white V-shaped longitudinal region, anterior margin concave; legs long, slender, leg formula 2 1 4 3 and measurements as in Table 2.

Abdomen: Broadly oval, longer than wide, narrowing at both ends (Fig. 13); dorsum decorated; ventrally pale, with a longitudinal brown patch extending from epigastric furrow up to the spinnerets; epigyne as in Fig. 17.

Specimens examined: Holotype: ♀, 12.v.1993, Coll. V. Biswas; Paratypes: 1♀, other data same as holotype and 1♀, Narail, Bangladesh, 5.vii.1992, Coll. V. Biswas.

Type locality: Magura, Bangladesh.

Male: Unknown.

Distribution: BANGLADESH: Magura, Narail.

Etymology: The species has been named after Dr. Pulak Lahiri, Professor, Department of Zoology, University of Calcutta, India, for his extreme interest in the work.

Remarks: The new species at best may be related to a Chinese species *Cyrtophora guangxiensis* Yin *et al.* (Yin *et al.* 1990) in having cephalic region greatly produced, cervical furrows deeply distinct and ovoid abdomen. The species stands distinct in having fovea and markedly different epigynum. The species also does not show any resemblance in general appearance as well as epigyne and internal genitalia, which are different from those of its Indian congeners.

ACKNOWLEDGEMENTS

We thank Dr. Animesh Bal, Scientist SE and Dr. S.C. Majumder, Scientist SD, Zoological Survey of India, Kolkata, for confirming the identification and the Head, Department of Zoology, University of Calcutta, for laboratory facilities.

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